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10/038,003	01/03/2002	Mustafa Eroz	PD-980024A	8049

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Patent Docket Administration  
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EXAMINER

BAKER, STEPHEN M

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/038,003

Applicant(s)

EROZ ET AL.

Examiner

Stephen M. Baker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 41-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 41-67 is/are rejected.
- 7) ☒ Claim(s) 68 and 69 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4.5.7.8.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because in Fig. 9 "MOLHER" (two occurrences) apparently should read as "MOTHER". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the coding system in a TDMA environment (as recited in claim 69) must be shown or the feature canceled from the claim. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:
  - On page 4, line 15, "best rate  $\frac{1}{2}$  constituent code universal" apparently should read as , "best universal rate  $\frac{1}{2}$  constituent code".
  - On page 4, line 31, "the a" apparently should read as "a".
  - On page 16, lines 12-13, reference is made to "rate  $\frac{1}{3}$  puncturing patterns" in a context where the rate  $\frac{1}{3}$  code is apparently unpunctured.

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Appropriate correction is required.

4. Claims 57, 58, and 66-69 are objected to because of the following informalities:

In claim 57 and 66: in line 4, "test patterns" is vague and apparently should read as "test puncturing patterns".

In claim 58: "method claim 54" apparently should read as "method of claim 54".

In claim 67: "method claim 63" apparently should read as "method of claim 63".

In claim 68: in line 6, "constitute" apparently should read as "constituent".

In claim 69: the claimed subject matter is not shown in the drawings.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 41-67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 41: the step of "puncturing the respective at least one parity bit at each encoder with a puncturing pattern that provides a reduced signal-to-noise ratio loss" is indefinite. The step presumably refers to a comparison of SNR losses produced using different puncture patterns generating the same punctured code rate, however there is no mention of plural puncturing patterns. Accordingly, "a reduced signal-to-noise ratio loss" apparently should read as "a reduced signal-to-noise ratio loss compared to any

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other possible equivalent-rate puncturing pattern". The property of "a reduced signal-to-noise ratio loss" furthermore does not appear to apply to all contexts encompassed by the claim language wherein "the first encoder and the second decoder each (produces) ... at least one parity bit". If the claim's context is taken as "the first encoder and the second decoder each (produces) ... (only) one parity bit", then there appears to be a problem in that all possible equivalent-rate puncturing patterns applicable to a single bit from both encoders would apparently have equivalent signal-to-noise ratio loss potential, at least as far as the examiner can determine, considering that the set of all possible equivalent-rate (the presence of a choice between multiple patterns requires  $R=1/2$ , in this case) puncturing patterns applicable to only a single bit from both encoders would apparently be limited to (using applicant's generic Fig. 3 as an example) two choices: beginning encoding with the alternating switch (312) coupled to encoder #1, or beginning encoding with the alternating switch (312) coupled to identical encoder #2. It is here (as in the disclosure) assumed that all systematic bits are transmitted from one constituent encoder and no other constituent encoder systematic bits are transmitted. The examiner believes that both choices of starting switch position would have the same potential effect on SNR. This belief is based in part on applicant's specification, for example on page 29 at lines 21-23, wherein it is indicated that cyclic shifting of puncturing patterns (which would transform one of the above-noted pattern choices into the other pattern choice) does not affect performance, also on page 31 at lines 20-22, wherein it is indicated that cyclic shifting of puncturing patterns offers "substantially equivalent performance", in Figs. 16(a) and 16(b) wherein cyclic shifts of

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candidate patterns are not even considered and are thus treated as presumably producing equivalent performance, and on page 34 at lines 6-7, where parity bits are simply described as "alternately punctured" without reference to the puncturing phase (i.e. the initial position of the alternating switch (312)). Accordingly, "each producing at least one parity bit" apparently should read as "each producing a plurality of parity bits", or the like, to permit a choice between equivalent-rate puncturing patterns with different SNR effect potentials, and any related claim language should apparently be adjusted consonant therewith.

In claim 43: as previously indicated, the two alternatives encompassed within "alternately puncturing parity bits between the first and second encoder" appear to be identical with respect to SNR loss potentials; "one of the puncturing steps" is indefinite, as only one step of "puncturing" appears to be previously recited.

In claims 44 and 52: referring to "transmitting all the parity bits at the first and second encoder" as "puncturing steps" is seen as self-contradictory; "one of the puncturing steps" is indefinite, as only one step of "puncturing" appears to be previously recited.

In claim 50: "at least one parity bit" apparently should read as "two or more parity bits", and "a reduced signal-to-noise ratio loss" apparently should read as "a reduced signal-to-noise ratio loss compared to the determining of any other possible equivalent-rate sequence of bits to transmit".

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In claim 54: in lines 6-7, "universally adapted to accommodate" is unclear, apparently does not correspond to the disclosure, and apparently should read as "universally adapted to best accommodate".

In claim 59: in line 7, "universally adapted to accommodate" apparently should read as "universally adapted to best accommodate".

In claim 63: in lines 5-6, "universally adapted to accommodate" apparently should read as "universally adapted to best accommodate".

#### ***Allowable Subject Matter***


7. Claims 1-67 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, second paragraph, set forth in this Office action.
8. Claims 68 and 69 are allowed.

#### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (703) 305-9681. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen M. Baker  
Primary Examiner  
Art Unit 2133

smb